

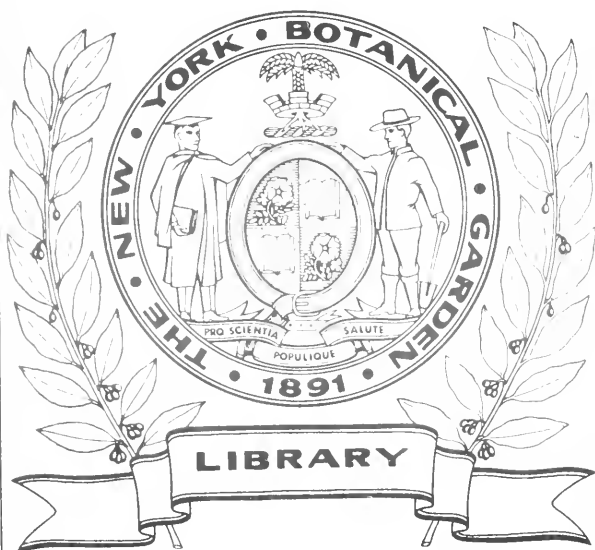
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Young, Herbert A

Catalogue of the Flora of
"Oak Island," Revere,
Massachusetts: with notes

Qk125

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Gray Herbarium
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BULLETIN
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ber equal to thirty-eight per cent will be alive in seventy years from their birth; so, to find the average duration of life in Massachusetts, we find that seventeen and two-thirds per cent die under five years of age, thirty-eight per cent live to be seventy and upwards.

| | Under 5 years per cent. | 70 yrs. & upwards per cent. | 5 to 70 years per cent. |
|---|----------------------------|--------------------------------|----------------------------|
| Carlisle table . . . | 32 | 24 | 44 |
| Wigglesworth . . . | 39 | 14 | 47 |
| English life-table . . | 25 | 25 | 50 |
| Mass. average-at- death table . . . | 36 | 14 | 50 |
| Mass. average-dura- tion-of-life table . | 18 | 38 | 44 |

In the town of Munroe, in Franklin county, in the year 1875, there was one death, a child two years old; and the report for that year makes the average age at death two years. As the population of Munroe was one hundred and ninety, and the death rate one per year, it would take one hundred and ninety years for a generation to pass away. Now, suppose the oldest person in that town had died, who was eighty years of age, the report would have been that the average age at death was eighty years, and as only one death occurred the length of a generation would be one hundred and ninety years. Massachusetts has expended a very large amount of money to ascertain the average age at death of all persons whose death takes place within the state, and we have tables showing the average age at death in every town and city of the state, and this average age at death is mistaken for the average duration of life. There is a difference of twenty years between them. It is these tables that have given the impression that the length of a generation is thirty years in Massachusetts. They are very deceptive and of little use. When such a man as Carrol D. Wright is deceived by such statistics, they can be of little use to the common

reader. In his report on the census of Massachusetts, he says "while from the Massachusetts Registration Reports it is learned that the average age to which all live is about thirty," he comes within twenty years of the right figure. The most important fact and the easiest obtained is to get the number of the population and the number of deaths. For the City of Salem the deaths for the eleven years, from 1865 to 1875, were 54.07, the population 25,958 or 1.89: to 100 living; if we take the average of the population for the eleven years it is a trifle over two per cent, which would take forty-nine years as the length of a generation in this city.

Holyoke is considered the most unhealthy city in Massachusetts: the deaths under five years are fifty-two per cent of all the deaths in the city. This is calculated on the births which for the eleven years were 4,065. There were added to the city by immigration during the eleven years, 10,612, of which number sixteen and one-half per cent were under five years of age, which makes 1,750 added to the city by immigration, making with the births, which were 4,065, 5,815 to draw the deaths under five from. Now, if 5,815 gives fifty-two per cent deaths under five years, what will 4,065 give? answer, thirty-six per cent, just the average of the whole state. There were added to the state by immigration in the eleven years, 273,044, of this number 255,992 were added in cities. Of this 255,992, there were added to the cities 42,238 under five years of age in the eleven years; that is what makes the deaths under five greater in the cities, 42,238 being distributed in the different cities according to the increase of population; this number is in addition to the births of the cities. Our registration officers have left out entirely the number under five that have been added to the state by immigration, and many blunders

have taken place in consequence. Should the city of Salem have gained in population as large a percentage as Holyoke did, the city would have had as large a death rate under five as Holyoke had, and would have been called the most unhealthy city in the state, and the State Board of Health would have had a special report on your city, with a map showing the causes of the great death rate under five years, as they did of Holyoke. They had three maps of Holyoke, and after a thorough investigation they report: "As far as situation and surroundings are concerned, Holyoke should be a healthy place," and Holyoke is a healthy place, and the death rate is no greater than the average of Massachusetts. The mistake is in our registration officers and State Board of Health. They leave out of the calculation the increase of population. Holyoke, in 1865, a town of 5,648, becomes a city in 1875, of 16,260, having added to her population 10,612 in the eleven years. The children under five years of this 10,612 are left out of the count, the number being 1,750. With this 1,750 left out, the deaths under five are 52 per cent; with the number added, thirty-six per cent, which makes Holyoke as healthy as the state averages. So of the other cities of the state; they are considered unhealthy just in proportion to the percentage of the increase of population. The greater the increase of population the greater the death rate under five will be. Holyoke is very much annoyed by these reports. People coming there to settle, the first question they ask is, "Is Holyoke a healthy city?" and it is a healthy city, and the citizens say it is healthy. They are met with the remark that it is the most unhealthy place in the state, and the report of our registration officers and State Board of health are given as authority. These reports based on ignorance are doing a great amount of mischief. Suppose

Salem had as great an increase of population as Holyoke, you would have had as large a death rate under five as Holyoke. The State Board of Health would have had a map of your city and with the Mill Pond nuisance and the North River, and you could not have made people believe that your death rate under five was due to any other cause than the two causes named. A great deal of mischief results from not understanding the causes of the great death rate in certain localities. A great amount of labor has been expended to show that our cities have a much larger death rate under five than the country towns. I fail to see it. I see where our state officials make their mistake. They have left out of their calculation the number under five added to the state by immigration, nearly all of which goes to the cities, and the cities that draw the largest percentage are considered the most unhealthy. Had this immigration gone to the country towns instead of the cities, what would our registration officers and Board of Health have said was the cause of the deaths under five years being greater in the country towns than in the cities, as they surely would have been had immigration gone to the country towns instead of the cities? I imagine they would have said the cities have pure water, their sanitary conditions are better regulated, they are under better police regulations, and the cities draw the most able physicians in the state. There is no reason why the cities of the state should not be as healthy as the rest of the state and they are.

CATALOGUE OF THE FLORA OF "OAK ISLAND,"
REVERE, MASSACHUSETTS: WITH NOTES.

BY HERBERT A. YOUNG.

INTRODUCTION AND SUMMARY.

BY JOHN ROBINSON.

"OAK ISLAND," or "Chelsea Beach Island," as it was called before North Chelsea was rechristened Revere, is a slight elevation of land, covered with trees, hardly reaching more than three or four feet above the surrounding saltmarsh, within the limits of the town of Revere, Massachusetts, and just a few rods beyond the inlet which separates that town from the town of Saugus in Essex County.

The island begins at about 800 feet back from what is now called Revere beach, with a strip of land running north and south 1,000 feet, having a breadth of 100 feet which is connected with the larger portion of the island which runs east and west some 1,400 feet, and has a breadth of 800 feet. This latter portion is divided into two unequal parts by the Eastern Railway which runs through it north and south. The Salem and Boston turnpike road runs by the island to the west at a distance of about a quarter of a mile. Formerly this station was only accessible to pedestrians and to the salt hay teams by a rough road from the beach.

Recently, however, with the opening of Revere beach as a pleasure resort, a picnic ground with its accompany-

ing dance stands and "flying horses" has been established on the easterly portion of the larger section of the island, and not only is the pleasant seclusion of the place interfered with, but at no distant day this interesting and historic botanical station will become for botanists a memory of the past. Mr. Young observes that the smaller detached portion of the island is more elevated and dryer than the larger portion, and that it possesses a somewhat different flora.

The wood upon the island has been cut from time to time, the last general cutting having been made perhaps not long after the Eastern Railway was built in 1837. The growth of timber now on the island is of deciduous-leaved trees, and consists chiefly of oaks, basswood, hickory and sassafras, the only coniferous tree being the red cedar (*Juniperus Virginiana*) which is represented by a few scattered specimens.

The soil is a vegetable humus on sand and gravel, upon which the plants thrive in moist seasons with great luxuriance.

The island is also a favorable locality for the collection of land snails and has been well known to botanists and conchologists for many years.

The whole number of plants noted in Mr. Young's list which includes the phanerogams, ferns and mosses, is three hundred and sixty-two, divided among the different families as follows :

NOTE.—Mr. C. E. Faxon and Geo. E. Davenport have kindly looked over Mr. Young's list and the collection of specimens which he has preserved, and add the following as the only species which they have noticed on or near the island not included *Ranunculus Cymbalaria*, Pursh; *Ranunculus sceleratus*, L.; *Sagina procumbens*, L. Along the railroad track between Revere station and Oak Island near the last bridge (G. E. D.). *Cynoglossum Morisoni*, DC. On the island (C. E. F.).

| | Gen. | Sp. | Int. | | Gen. | Sp. | Int. |
|------------------|------|-----|------|-----------------|------|-----|------|
| Ranunculaceæ. | 4 | 10 | 2 | | 111 | 182 | 26 |
| Berberidaceæ. | 1 | 1 | 1 | Labiatae. | 8 | 8 | |
| Cruciferae. | 7 | 9 | 3 | Convolvulaceæ. | 1 | 1 | |
| Violaceæ. | 1 | 3 | | Solanaceæ. | 1 | 1 | 1 |
| Cistaceæ. | 2 | 2 | | Gentianaceæ. | 1 | 1 | |
| Hypericaceæ. | 1 | 3 | 1 | Apocynaceæ. | 1 | 1 | |
| Caryophyllaceæ. | 8 | 11 | 5 | Asclepiadaceæ. | 1 | 2 | |
| Portulacaceæ. | 1 | 1 | 1 | Chenopodiaceæ. | 5 | 7 | 2 |
| Tiliaceæ. | 1 | 1 | | Amarantaceæ. | 1 | 2 | 2 |
| Geraniaceæ. | 3 | 3 | | Polygonaceæ. | 2 | 10 | 4 |
| Anacardiaceæ. | 1 | 3 | | Lauraceæ. | 1 | 1 | |
| Vitaceæ. | 2 | 2 | | Euphorbiaceæ. | 2 | 3 | |
| Celastraceæ. | 1 | 1 | | Urticaceæ. | 2 | 2 | |
| Leguminosæ. | 7 | 14 | 5 | Cupuliferae. | 3 | 10 | |
| Rosaceæ. | 10 | 18 | | Myricaceæ. | 1 | 1 | |
| Saxifragaceæ. | 1 | 2 | | Betulaceæ. | 1 | 1 | |
| Hamamelaceæ. | 1 | 1 | | Salicaceæ. | 2 | 4 | |
| Onagraceæ. | 3 | 5 | | Coniferae. | 1 | 1 | |
| Lythraceæ. | 1 | 1 | | Araceæ. | 1 | 1 | |
| Umbelliferae. | 5 | 5 | 1 | Naiadaceæ. | 1 | 1 | |
| Araliaceæ. | 1 | 1 | | Alismaceæ. | 1 | 1 | |
| Cornaceæ. | 1 | 1 | | Orchidaceæ. | 1 | 1 | |
| Caprifoliaceæ. | 4 | 4 | | Iridaceæ. | 2 | 2 | |
| Rubiaceæ. | 2 | 4 | | Smilaceæ. | 1 | 2 | |
| Compositæ. | 23 | 48 | 4 | Liliaceæ. | 8 | 10 | 1 |
| Campanulaceæ. | 1 | 1 | | Juncaceæ. | 2 | 6 | |
| Ericaceæ. | 4 | 6 | | Cyperaceæ. | 5 | 24 | |
| Aquifoliaceæ. | 1 | 1 | | Gramineæ. | 22 | 44 | 9 |
| Plantaginaceæ. | 1 | 3 | 1 | Equisetaceæ. | 1 | 1 | |
| Plumbaginaceæ. | 1 | 1 | | Filices. | 4 | 4 | |
| Primulaceæ. | 1 | 2 | | Ophioglossaceæ. | 1 | 1 | |
| Orolanchaceæ. | 2 | 2 | | Musci. | 16 | 25 | |
| Scrophulariaceæ. | 6 | 10 | 2 | Hepaticæ. | 3 | 3 | |
| Verbenaceæ. | 2 | 2 | | | | | |
| | 111 | 182 | 26 | | 213 | 364 | 45 |

| | Ord. | Gen. | Sp. | Int. |
|----------------------|------|------|-----|------|
| Exogens. | 50 | 144 | 237 | 35 |
| Gymnosperms. | 1 | 1 | 1 | |
| Endogens. | 10 | 44 | 92 | 10 |
| Vascular Cryptogams. | 3 | 6 | 6 | |
| Muscineæ. | 2 | 19 | 28 | |
| | 66 | 214 | 364 | 45 |

THE FLORA OF OAK ISLAND.

BY HERBERT A. YOUNG.

The species enumerated in the following list were mostly observed during the year 1882, although the writer has been familiar with the station for many seasons previous. Representatives of nearly all the species have been preserved. As the list is therefore based upon the work of a season rather unfavorable for botanical collecting, on account of the drought of July and August, it is probable that other species might be added especially to the list of mosses which owing to their small size are easily overlooked.

The region was evidently familiar to Dr. Bigelow, for in the "Florula Bostoniensis" he mentions the following species as found on "Chelsea Beach Island :"

Ranunculus recurvatus, *Poir.*
Arabis falcata, *Michx.*
Cryptotænia Canadensis, *D C.*
Osmorrhiza longistylis, *D C.*
Circea lutitiana, *L.*
Desmodium cuspidatum, *Torrey.*
Monarda allophylla, *Michx.*
Phryma leptostachia, *L.*
Scrophularia Marilandica, *L.*
Lysimachia ciliata, *L.*
Allium Canadense, *L.*
Leersia Virginica, *Willd.*
Botrychium Virginicum, *Willd.*

With the exception of *Phryma* all have been collected during the past season. The portion of the island to the

east of the tracks of the Eastern Railway has for several years been used for the purposes of a picnic ground, so that the herbs and undershrubs are fast disappearing, and can only now be collected in the spots along the outskirts, and in a few years the farther portion of the island to the west of the Eastern Railway will undoubtedly share the same fate, thus entirely destroying one of the most interesting botanical stations in this part of the country.

Ranunculaceæ.

- Anemone Virginiana*, *L.* A few specimens found.
Anemone nemorosa, *L.* Abundant.
Thalictrum dioicum, *L.* Abundant.
Thalictrum purpurascens, *L.* Abundant. Matures a short time after *T. dioicum* and before *T. Cornuti*. Recognized first by the peculiar odor of the leaves.
Thalictrum Cornuti, *L.* Abundant.
Ranunculus recurvatus, *Poir.* Not very abundant.
Ranunculus abortivus, *L.* Abundant.
Ranunculus bulbosus, *L.* One specimen only obtained.
Ranunculus acris, *L.* Only a few specimens noticed.
Actuæ spicata, *L.* var. *rubra*, *Michx.* Abundant.

Berberidaceæ.

- Berberis vulgaris*, *L.* One bush in the western part.

Cruciferae.

- Cardamine hirsuta*, *L.*, var. *sylvatica*. Scarce.
Arabis Canadensis, *L.* Abundant in the western part.
Arabis perfoliata, *Lam.* A few specimens noticed in 1878.
Sisymbrium officinale, *Scop.* Abundant near the barn.
Capsella Bursa-pastoris, *Moench.* Near house and barn.
Lepidium Virginicum, *L.* Mostly on the road from the beach to the island.
Lepidium ruderalis, *L.* Mostly on the road from the beach to the island.
Cakile Americana, *Nutt.* Around the edges.
Raphanus Raphanistrum, *L.* One specimen only.

Violaceæ.

- Viola cucullata*, *Ait.* Specimens abundant and very large.
Viola sagittata, *Ait.* A few small specimens only found.

Viola pubescens, *Ait.* Quite abundant in the western part: growing scarcer.

Cistaceæ.

Helianthemum Canadense, *Michx.* Found in extreme eastern part.

Lechea major, *Michx.* Found in the extreme eastern part.

Hypericaceæ.

Hypericum perforatum, *L.* Quite abundant.

Hypericum corymbosum, *Muhl.* Found in the western part.

Hypericum mutilum, *L.* Scarce. Found near railroad track.

Caryophyllaceæ.

Dianthus Armeria, *L.* A few specimens obtained.

Silene inflata, *Smith.* Abundant near railroad track.

Silene antirrhina, *L.* Abundant near railroad track.

Arenaria lateriflora, *L.* Abundant.

Stellaria media, *Smith.* Abundant.

Cerastium viscosum, *L.* Abundant.

Lepigonum rubrum, *Fries.*, var. *campestre*. Only one specimen found.

Lepigonum medium, *Fries.* Common in the western part along the edge bordering on the salt marsh.

Lepigonum salinum, *Fries.* Abundant. Growing with *L. medium*.

Scleranthus annuus, *L.* Scarce. On the railroad track.

Mollugo verticillata, *L.* On the railroad embankment.

Portulacaceæ.

Portulaca oleracea, *L.* On the railroad embankment.

Tiliaceæ.

Tilia Americana, *L.* The most abundant tree.

Geraniaceæ.

Geranium maculatum, *L.* Abundant.

Impatiens fulva, *Nutt.* The form producing without flowering most abundant.

Oxalis stricta, *L.* Abundant.

Anacardiaceæ.

Rhus typhina, *L.* Not very abundant.

Rhus glabra, *L.* Not very abundant.

Rhus Toxicodendron, *L.* Very abundant.

Vitaceæ.

Vitis Labrusca, *L.* A few plants noticed.

Ampelopsis quinquefolia, *Michx.* Quite abundant.

Celastraceæ.

Celastrus scandens, *L.* A few vines noticed.

Leguminosæ.

Trifolium arvense, *L.* Abundant on the railroad track.

Trifolium pratense, *L.* Quite abundant. Scattered.

Trifolium hybridum. One plant noticed.

Trifolium repens, *L.* Quite abundant.

Trifolium agrarium, *L.* One plant noticed.

Medicago lupulina, *L.* Only a few plants on the island.

Desmodium acuminatum, *D. C.* Abundant in the west part.

Desmodium canescens, *D. C.* Found a few years ago by Mr. C. E. Faxon. Not found since.

Desmodium Canadense, *D. C.* Quite abundant.

Lespedeza capitata, *Michx.* A few plants in the extreme eastern part.

Lathyrus maritimus, *Bigelow*. A few specimens noticed a short distance from the island on the railroad track.

Lathyrus palustris, *L.* In extreme eastern part.

Apios tuberosa, *Moench*. Not very abundant.

Amphicarpea monoica, *Nutt.* Abundant in western part.

Rosaceæ.

Prunus Virginiana, *L.* Not very abundant.

Prunus serotina, *Ehrhart*. A few small trees in western part.

Spiraea salicifolia, *L.* A few bushes.

Agrimonia Eupatoria, *L.* Scattered.

Gemma album, *Gmelin*. Mostly near the hotel.

Potentilla Norvegica, *L.* Around the edges, north side.

Potentilla Canadensis, *L.*, var. *simplex*, *T. & G.* Abundant.

Potentilla argentea, *L.* A few specimens only.

Potentilla Anserina, *L.* Around the edges mostly on north side.

Fragaria Virginiana, *Ehrhart*. In extreme eastern part.

Rubus strigosus, *Michx.* A few specimens on north side.

Rubus occidentalis, *L.* Quite abundant.

Rubus villosus, *Ait.* Quite abundant.

Rubus Canadensis, *L.* Quite abundant.

Rubus hispidus, *L.* Mostly on the north side.

Rosa lucida, *Ehrhart*. Abundant.

Pirus arbutifolia, *L.*, var. *erythrocarpa*. Scattered, not abundant.

Amelanchier Canadensis, *T. & G.*, var. *oblongifolia*. A few trees in western part.

Saxifragaceæ.

Ribes oxycanthoides, *L.* A few plants.

Ribes floridum, *L.* Three plants noticed.

Hamamelaceæ.

Hamamelis Virginica, *L.* A few plants; scattered.

Onagraceæ.

Circæa Lutetiana, *L.* Abundant in the western part.

Epilobium angustifolium, *L.* Three or four plants noticed.

Epilobium coloratum, *Muhl.* Scattered.

Oenothera biennis, *L.* A few plants only.

Oenothera pumila, *L.* Not abundant.

Lythraceæ.

Lythrum Hyssopifolia, *L.* Abundant.

Umbelliferæ.

Cicuta maculata, *L.* One or two specimens.

Osmorrhiza longistylis, *D C.* Abundant.

Cryptotaenia Canadensis, *D C.* Abundant.

Sanicula Marilandica, *L.* Abundant.

Carum Carui, *L.* One specimen only in extreme eastern part.

Araliaceæ.

Aralia nudicaulis, *L.* Abundant in western part.

Cornaceæ.

Cornus paniculata, *L'Her.* Abundant in southwestern part.

Caprifoliaceæ.

Diervilla trifida, *Mench.* In southwestern part.

Triosteum perfoliatum, *L.* Scattered. Not abundant.

Sambucus Canadensis, *L.* In extreme eastern part. A few bushes.

Viburnum dentatum, *L.* A few bushes around the edge.

Rubiaceæ.

Galium Aparine, *L.* Abundant.

Galium triflorum, *Michx.* Abundant.

Galium circæzans, *Michx.* Not abundant.

Houstonia cærulea, *L.* A few specimens only.

Compositæ.

Eupatorium purpureum, *L.* Abundant in western part.

Aster corymbosus, *Ait.* In western part. Scarce.

Aster lævis, *L.* Scarce.

Aster undulatus, *L.* Abundant.

Aster cordifolius, *L.* Abundant.

- Aster multiflorus*, *Ait.* Abundant.
Aster miser, *L.* Abundant.
Aster carneus, *Nees.* In western part in one spot only.
Aster longifolius, *Lam.* Abundant.
Aster Novæ-Angliæ, *L.* Mostly in one spot in eastern part.
Aster linifolius, *L.* Around the edge. Abundant.
Erigeron Canadense, *L.* Mostly on approach to the island from the beach.
Erigeron annuum, *Pers.* Scattered.
Erigeron strigosus, *Muhl.* In extreme eastern part.
Solidago cæsia, *L.* Two small patches in the western part.
Solidago bicolor, *L.* Not abundant.
Solidago sempervirens, *L.* Very abundant around the edges.
Solidago arguta, *Ait.* Abundant.
Solidago altissima, *L.* Not abundant.
Solidago odora, *Ait.* A few plants in the extreme eastern part.
Solidago nemoralis, *Ait.* Not abundant.
Solidago Canadensis, *L.* Two forms occur.
Solidago lanceolata, *L.* Scarce.
Solidago sp.? Perhaps a cross between *S. sempervirens* and *S. altissima*.
Iva frutescens, *L.* A few plants on the eastern edge of the island near the road.
Ambrosia artemisia-folia, *L.* Abundant.
Xanthium strumarium, *L.* Abundant near the barn.
Rudbeckia hirta, *L.* A few plants in the eastern part.
Helianthus strumosus, *L.* Abundant.
Helianthus divaricatus, *L.* Abundant.
Bidens frondosa, *L.* Around the northern edge; not abundant.
Maruta Cotula, *D C.* Not abundant.
Achillea Millefolium, *L.* Scarce.
Leucanthemum vulgare, *Lam.* Two specimens only.
Artemisia caudata, *Michx.* Mostly on the road from the beach to the island.
Gnaphalium polycephalum, *Michx.* A few specimens in the extreme eastern part.
Gnaphalium uliginosum, *L.* A few specimens; scattered.
Antennaria margaritacea, *R. Br.* A few specimens in the extreme southeastern part.
Antennaria plantaginifolia, *Hook.* A few specimens in the extreme eastern part.
Erechthites hieracifolia, *Raf.* Abundant on northern border.
Cirsium discolor, *Spreng.* Three specimens.
Cirsium horridulum, *Michx.* In the extreme western part.

Cirsium arvense, *Scop.* Scarce.

Lappa officinalis, *Allioni.* Scarce.

Nabalis albus, *Hook.* Abundant in the western part.

Taraxacum Dens-leonis, *Desf.* About four plants seen.

Lactuca Canadensis, *L.* Not abundant. Scattered.

Mulgedium leucophæum, *D C.* Not abundant. Scattered.

Campanulaceæ.

Specularia perfoliata, *A. D C.* Abundant in the eastern part in the early part of the season. The form found was very small, and perfected the fruit without producing any corolla. It was identified for me by Mr. C. E. Faxon.

Ericaceæ.

Gaylussacia resinosa, *T. & G.* Only found in the extreme southeastern part.

Vaccinium Pennsylvanicum, *Lam.* Only found in the extreme southeastern part.

Vaccinium vacillans, *Solander.* Only found in the extreme southeastern part.

Vaccinium corymbosum, *L.*, var. *atrocoecum.* A few plants.

Andromeda ligustrina, *Muhl.* One bush in the extreme eastern part.

Pyrola elliptica, *Nutt.* A few plants in the western part.

Aquifoliaceæ.

Ilex verticillata, *Gray.* Not abundant. Mostly around the western border.

Plantaginaceæ.

Plantago major, *L.* Abundant.

Plantago Rugellii, *Decaisne.* Abundant.

Plantago decipiens, *Barneoud.* Abundant around the western border.

Plumbaginaceæ.

Statice Limonium, var. *Caroliniana.* Abundant on the neighboring marsh.

Primulaceæ.

Lysimachia quadrifolia, *L.* Abundant.

Lysimachia ciliata, *L.* Abundant in the western part.

Orobanchaceæ.

Epiphegus Virginiana, *Bart.* Found by Mr. F. S. Collins a few years ago.

Aphyllon uniflorum, *T. & G.* Three plants in the eastern part near railroad.

Scrophulariaceæ.

- Verbascum Thapsus*, *L.* Not abundant.
Linaria Canadensis, *Spring.* Near the railroad mostly.
Linaria vulgaris, *Mill.* Near the railroad mostly.
Scrophularia nodosa, *L.* A few plants in the middle of the western part.
Veronica arvensis, *L.* A few plants in the extreme eastern part.
Veronica peregrina, *L.* Scattered.
Gerardia purpurea, *L.* About a dozen specimens on the southwestern edge of the island.
Gerardia maritima, *Raf.* Very abundant on the neighboring marshes.
Gerardia quercifolia, *Pursh.* Abundant in the western part near the railroad.
Pedicularis Canadensis, *L.* In the extreme western part. Not abundant.

Verbenaceæ.

- Verbena hastata*, *L.* Scattered. Not abundant.
Phryma Leptostachya, *L.* *Bigelow*, *Florula Bostoniensis.* Not found since.

Labiataæ.

- Tenereum Canadense*, *L.* Abundant around the borders.
Trichostema dichotomum, *L.* One plant on the Eastern Railroad track.
Lycopus sinuatus, *Ell.* Abundant.
Hedeoma pulegioides, *Pers.* Abundant in the eastern part.
Collinsonia Canadensis, *L.* Quite abundant in the western part near the railroad.
Monarda fistulosa, *L.* A few plants in the western part.
Lopanthus scrophulariæfolius, *Benth.* A few plants in the middle of the western part.
Brunella vulgaris, *L.* Abundant.

Convolvulaceæ.

- Convolvulus sepium*, *L.* Abundant on the western border.

Solanaceæ.

- Solanum nigrum*, *L.* Near the house.

Gentianaceæ.

- Gentiana Andrewsii*, *Griseb.* Two plants only found.

Apocynaceæ.

Apocynum androsæmifolium, *L.* In northern part near railroad.

Asclepiadaceæ.

Asclepias Cornuti, *Decaisne.* Along the railroad bank.

Asclepias phytolaccoides, *Pursh.* In the centre of the western part.

Chenopodiaceæ.

Chenopodium album, *L.* Abundant.

Chenopodium hybridum, *L.* In the eastern part.

Atriplex patula, *L.*, var. *hastata.* Abundant around the border of the island.

Atriplex patula, *L.*, var. *littoralis.* Abundant around the border of the island.

Salicornia herbacea, *L.* Abundant on the marsh adjacent.

Suaeda maritima, *L.* Abundant around the borders.

Salsola Kali, *L.* Mostly on the approach to the island from the beach.

Amarantaceæ.

Amarantus retroflexus, *L.* Abundant near the house.

Amarantus albus, *L.* A few plants only.

Polygonaceæ.

Polygonum Persicaria, *L.* Abundant.

Polygonum Hydropiper, *L.* Abundant.

Polygonum aviculare, *L.* Abundant.

Polygonum erectum, *L.* Scarce and somewhat doubtful.

Polygonum maritimum, *L.* Abundant on the borders.

Polygonum sagittatum, *L.* One plant only found.

Polygonum Convolvulus, *L.* Not very abundant.

Polygonum dumetorum, *L.*, var. *scandens.* Abundant in western part.

Rumex crispus, *L.* Abundant.

Rumex Acetosella, *L.* Abundant.

Lauraceæ.

Sassafras officinale, *Nees.* Abundant in the western part.

Euphorbiaceæ.

Euphorbia polygonifolia, *L.* Scarce. Abundant on the beach opposite.

Euphorbia maculata, *L.* Abundant on the railroad bank.

Acalypha Virginica, *L.* Abundant.

Urticaceæ.

Ulmus Americana, *L.* A few trees. Scattered.

Pilea pumila, *Gray.* Abundant in the western part. It all dried up and disappeared before flowering.

Cupuliferæ.

Carya alba, *Nutt.* Abundant.

Carya tomentosa, *Nutt.* Scarce. Two or three trees only.

Carya porcina, *Nutt.* Abundant.

Carya amara, *Nutt.* The most abundant hickory.

Quercus alba, *L.* Quite abundant. One of the largest trees; about fifteen inches in diameter, is a white oak.

Quercus bicolor, *Willd.* Most abundant in the extreme eastern part.

Quercus coccinea, *Wang.* There is one tree which seems to be intermediate between *Q. coccinea* and *Q. rubra*. It has the acorn of *coccinea* and the leaf of *rubra*. The leaf is rather small.

Quercus tinctoria, *Bart.* One tree in the extreme southeastern part. Identified by the fringed acorn and the bright orange inner bark.

Quercus rubra, *L.* Abundant. This species with *bicolor* constitutes the greater part of the oaks.

Corylus Americana, *Walt.* In the middle of the western part.

Myricaceæ.

Myrica cerifera, *L.* Not abundant.

Betulaceæ.

Betula alba, var. *populifolia*, *Spach.* A few small trees.

Salicaceæ.

Salix discolor, *Muhl.* A few bushes.

Salix humilis, *Marshall.* A few bushes.

Populus grandidentata, *Michx.* This species and the next occur together as small shrubs in the extreme southeastern part.

Populus tremuloides, *Michx.*

Coniferæ.

Juniperus Virginiana, *L.* The only conifer. A few trees only.

Araceæ.

Arisæma triphyllum, *Torr.* Abundant.

Naiadaceæ.

Ruppia maritima, *L.* In a pool of water near the island.

Alismaceæ.

Triglochin maritimum, *L.* Abundant on the saltmarsh adjoining.

Orchidaceæ.

Orehiis spectabilis, *L.* Bigelow found this plant. It is now found in the western part. Some years it is abundant, while in others it is very scarce. It was abundant this year (1882).

Iridaceæ.

Iris Virginica, *L.* A few specimens on the southern edge.
Sisyrinchium Bermudiana, *L.* Not abundant.

Smilaceæ.

Smilax rotundifolia, *L.* In the northwestern part.
Smilax herbacea, *L.* Scattered.

Liliaceæ.

Uvularia perfoliata, *L.* Abundant.
Oakesia sessilifolia, *Watson.* Abundant.
Smilacina racemosa, *Desf.* Abundant.
Smilacina bifolia, *Ker.* Abundant in the extreme western part.
Polygonatum biflorum, *Ell.* Abundant in the western part.
Asparagus officinalis, *L.* One specimen only found.
Lilium Philadelphicum, *L.* In the extreme eastern part.
Lilium Canadense, *L.* Scattered.
Erythronium Americanum, *Smith.* Very abundant.
Allium Canadense, *Kalm.* Abundant.

Juncaceæ.

Luzula campestris, *D C.* Not abundant.
Juncus Balticus, *Dethard.* On the adjacent marshes.
Juncus bufonius, *L.* Abundant around the borders.
Juncus Gerardi, *Loisel.* On the adjacent marshes.
Juncus tennis, *Willd.* Abundant.
Juncus acuminatus, *Michx.* Not abundant.

Cyperaceæ.

Cyperus Nuttallii, *Torr.* Not abundant.
Cyperus strigosus, *L.* Not abundant.
Cyperus filiculmis, *Vahl.* Not abundant.
Eleocharis obtusa, *Schultes.* One specimen found.
Eleocharis palustris, *R.Br.* A variety on the adjacent salt-marsh.
Eleocharis tenuis, *Schultes.* Quite abundant.
Scirpus pungens, *Vahl.* Near the railroad on the north side.
Scirpus planifolius, *Muhl.* One bunch in the western part.

- Scirpus maritimus*, *L.* Abundant around the borders.
Fimbristylis capillaris, *Gray.* On the railroad.
Carex stipata, *Muhl.* Not very abundant.
Carex sparganioides, *Muhl.* A few plants in the eastern part.
Carex cephalophora, *Muhl.* Abundant.
Carex rosea, *Schk.* Abundant.
Carex scoparia, *Schk.* Abundant.
Carex silicea, *Olney.* On the road from the beach to the island.
Carex cristata, *Schw.*, var. *mirabilis*, *Boot.* Abundant.
Carex straminea, *Schk.* Several varieties are found.
Carex virescens, *Muhl.* Scarce.
Carex laxiflora, *Lam.* Two varieties occur.
Carex Emmonsii, *Dew.* Abundant in the western part.
Carex Pennsylvanica, *Lam.* Abundant.
Carex lanuginosa, *Michx.* Not abundant.
Carex vestita, *Willd.* Not abundant.

Gramineæ.

- Leersia Virginica*, *Willd.* In the western part near the railroad. Scarce.
Alopecurus pratensis, *L.* Abundant.
Phleum pratense, *L.* Not abundant.
Agrostis perennans, *Tuckerman.* Two specimens only.
Agrostis scabra, *Willd.* Quite abundant.
Agrostis vulgaris, *With.* Abundant.
Agrostis alba, *L.* Abundant between the extreme eastern and the main eastern parts.
Muhlenbergia Willdenovii, *Trin.* A few specimens only in the middle of the western part.
Calamagrostis arenaria, *Roth.* On the road from the beach to the island.
Calamagrostis Canadensis, *Beauv.* Abundant.
Oryzopsis asperifolia, *Michx.* Found three specimens in 1879.
Spartina cynosuroides, *Willd.* Abundant around the edges.
Spartina juncea, *Willd.* Mostly on the adjacent saltmarsh.
Spartina stricta, *Roth.* Mostly on the borders of the creeks and pools adjacent.
Glyceria maritima, *Wahl.* On the adjacent saltmarsh.
Glyceria distans, *Wahl.* This species is a little doubtful.
Brizopyrum spicatum, *Hook.* Abundant on the adjacent marsh.
Poa annua, *L.* In front of the house in the eastern part.
Poa compressa, *L.* The most common grass.
Poa serotina, *Elkhart.* Abundant.
Poa pratensis, *L.* Abundant.

- Poa trivialis*, *L.* A little doubtful.
Festuca ovina, *L.*, var. *duriuscula*. Scarce.
Festuca elatior, *L.* Abundant.
Festuca nutans, *Willd.* Abundant in the western part.
Phragmites communis, *Trin.* Three specimens in the north-western part.
Triticum repens, *L.* Abundant.
Elymus Virginicus, *L.* On the approach to the island mostly. Scarce.
Elymus striatus, *Willd.* Quite abundant in the western part.
Gymnostichum Hystrix, *Schreb.* Abundant in the western part.
Danthonia compressa, *Austin.* Abundant.
Hierochloa borealis, *R. & S.* Quite abundant.
Anthoxanthum odoratum, *L.* A few specimens only.
Panicum virgatum, *L.* Abundant around the borders.
Panicum latifolium, *L.* Abundant.
Panicum pauciflorum, *Ell.* Abundant.
Panicum dichotomum, *L.* This species is a little doubtful.
Panicum sanguinale, *L.* Mostly on the railroad.
Panicum capillare, *Bosc.* Mostly on the railroad bank.
Panicum Crus-Galli, *L.* A few specimens found.
Setaria glauca, *Beauv.* Mostly on the railroad bank.
Setaria viridis, *Beauv.* Mostly on the railroad bank.
Setaria Italica, *Kunth.* Two or three specimens only found.
Andropogon furcatus, *Muhl.* A few specimens found in 1880.

Equisetaceæ.

- Equisetum arvense*, *L.* Abundant.

Filices.

- Pteris aquilina*, *L.* The most abundant fern.
Aspidium Thelypteris, *Swartz.* Abundant.
Asplenium Filix-fœmina, *Bernh.* Scarce.
Onoclea sensibilis, *L.* Not abundant.

Ophioglossaceæ.

- Botrychium Virginianum*, *Swartz.* Very fine specimens obtained. Not abundant.

The following is a list of mosses collected this season (1882). The list is undoubtedly incomplete, as many must have escaped my notice.

MUSCI.

Fissidens osmundioides, *Hedw.* Rare. One specimen only obtained.

Ceratodon purpureus, *Brid.* Not common.

Trichostomum pallidum, *Hedw.* Very common in the western part.

Orthotrichum strangulatum, *Beauv.* Abundant on trees.

Orthotrichum Hutchinsiae, *Smith.* On rocks. Not abundant.

Hedwigia ciliata, *Ehrh.* Not very common.

Atrichum angustatum, *Beauv.* Common.

Polytrichum commune, *L.* Common in the eastern part.

Polytrichum juniperinum, *Hedw.* Common in the eastern part.

Mnium affine, *Bland.* Very common.

Mnium hornum, *Hedw.* In one spot in the northwestern part.

Bryum caespitium. Frequent.

Funaria hygrometrica, *Hedw.* Not common.

Physcomitrium pyriforme, *Br. & Sch.* Not common.

Anomodon attenuatus, *Hub.* On one rock in the western part.

The species is somewhat doubtful.

Thelia hirtella, *Sulliv.* On trees. Not common.

Cylindrothecium seductrix, *Bryol. Europ.* Not common. One specimen only obtained.

Hypnum cupressiforme, *L.* Not common.

Hypnum nitens, *Schreb.* Not common. Determination very doubtful.

Hypnum salebrosum, *Hoffm.* Common.

Hypnum rutabulum, *L.* One specimen only obtained.

Hypnum populeum, *Hedw.* The most abundant moss.

Hypnum hispidulum, *Brid.* Rare.

Hypnum serpens, *Hedw.* Quite abundant on rocks with *H. populeum*.

Hypnum adnatum, *Hedw.* Rare.

HEPATICÆ.

Lophocolea heterophylla, *Nees.* Not common.

Madotheca platyphylla, *Dumortier.* Common on the rocks.

Frullania Grayana, *Montagne.* Common on trees.

OPENING OF A NEWLY DISCOVERED SHELL- HEAP AT IPSWICH.

COMMUNICATED BY JOHN ROBINSON.

THE shellheaps in the vicinity of Ipswich have long been a subject of study and investigation for the archæologists of this region. Messrs. Wyman, Putnam, Morse, Cooke, Lebaron and others have, from time to time, worked upon these shellheaps and collected many interesting specimens from them besides adding to the scientific knowledge of the subject. In no single instance, however, has any particular shellheap been carefully turned over from end to end, nor have the contents of a heap been collected and preserved as a special collection. This is to be regretted, as there is now hardly any shellheap to be found in this vicinity at which some one has not worked to a greater or less extent.

Early in September (1882), Mr. I. J. Potter of the Ipswich Chronicle, an earnest student of the Indian remains in the neighborhood of Ipswich, called the attention of the officers of the Peabody Academy of Science to a shellheap which he had observed on the shore of Ipswich river. An examination showed that this heap had never been disturbed and it was at once determined to investigate it carefully and to retain as one exhibit everything of scientific value that might be obtained. Permission was kindly given to the Academy by Mr. Perkins, the owner of the land upon which the heap was found, to do the work, and on September 17, the first examination was made.

The shellheap is situated on the northeastern end of Perkins island in Ipswich river, now incorrectly known as

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